

## REMARKS

Claims 3 and 13-16 have been canceled. Claims 1-2 and 4-12 remain for examination.

Claim 1 stands rejected under 35 U.S.C. 103 as unpatentable over Kurauchi (5,917,572) in view of Seiki (JP 10-096955). Further, Claims 1, 2 and 4-16 stand rejected under 35 U.S.C. 103 as unpatentable over Miyazaki (5,757,451) in view of Seiki. In addition, the Examiner has noted Shindo (5,181,132) as being relevant.

The examiner's rejections are respectfully traversed.

Applicant's invention readily distinguishes over the prior art in including the newly cited Seiki reference which utilizes an auxiliary capacitor using the address lines 3 as a portion thereof. In fact, applicant's invention does not utilize an auxiliary capacitor and, as shown in the drawings, does not utilize a spacer and contact hole in a region which contains address lines as shown in Seiki.

In order to more readily distinguish applicant's invention from the cited prior art, applicant has amended independent claim 1 to recite that, in the region below the contact hole, the transparent electrode film is formed on an in direct contact with a signal electrode, the signal electrode is formed on and in direct contact with and insulating film, and the insulating film is formed on an indirect contact with the substrate. These positive limitations readily distinguish applicant's invention from Seiki, which does not show the gate insulating layer (17) being on and in direct contact with the substrate (7) because Seiki utilizes address wiring (8) disposed therebetween to form part of the auxiliary capacitor.

In this connection, applicant concurs with the comments made by the examiner in the Examiner Interview Summary concerning the interview held on May 15, 2003. During that interview, applicant discussed with the examiner the possibility of utilizing some negative limitation such as that the region below the contact hole does not contain an auxiliary capacitor. However, the examiner was not in favor of such a limitation indicating that clear and unequivocal support expressly found in the text of the application must be provided to

add such a negative limitation and that the drawings alone would not provide such an express teaching.

Applicant's amended claim 1 overcomes the problem of the negative limitation by positively reciting the structure clearly shown in the drawings. This positive recitation of the structure inherently excludes the auxiliary electrode of Seiki and thus inherently excludes Seiki's structure. With regard to the teachings of Kurauchi and Miyazaki, applicant's recitation of the contact hole clearly distinguishes applicant's invention from these prior art teachings.

In addition, applicant has amended claim 1 so that it now recites that a cross-sectional area of said columnar spacer is smaller than the contact hole. Claims 4, 7 and 8 have been amended similarly. This limitation is not found in Kurauchi, Seiki, Miyazaki or Shindo, individually or in combination.

As discussed above, with regard to the teachings of Kurauchi and Miyazaki, applicant's recitation of the contact hole clearly distinguishes applicant's invention from these prior art teachings. Moreover, as can be seen in Seiki, spacer 26 does not have a cross-sectional area that is smaller than the contact hole.

In view of the comments set forth above, it is submitted that claim 1 is clearly patentable and that the Patent and Trademark Office has not made out a *prima facie* case of obviousness under the provisions of 35 U.S.C. 103.

Applicant has amended claim 4 to place it in independent form. This claim is similar to claim 1 but recites that the columnar spacer is formed by passing through a transparent electrode film. Claim 4 is deemed to be patentable for the same reasons indicated above with regard to claim 1. Dependent claims 2 and 5-6 depend from claim 1 and are deemed to be patentable at least for the same reason as indicated above with regard to claim 1. Method claims 7 and 8 recite the step of forming the columnar spacer on the transparent electrode film at least in a part of the contact holes provided on the pixel region. This claim recitation is deemed to distinguish over the prior art including Seiki since, as may be clearly seen from the drawing, the spacer 26 of Seiki is integrally formed on a surface of the opposing substrate

27 and is thus only inserted into the contact hole when the opposing substrate 27 is itself positioned over the main substrate 7. In contrast, applicant forms the columnar spacing on the transparent pixel electrode (such as by sputtering) which provides for more accurate control of the column depth and ease of manufacture.

Applicant intends to submit under separate cover new figures 1 and 5 which more clearly show the columnar spacer 203 positioned on the electrode film 205 (for figure 1) and the columnar spacer 503 positioned on the electrode film 505 (figure 5). The signal electrode 214 for figure 1 and 514 for figure 5 are also indicated. These figures have been amended in order to conform with the over-all explanation concerning the invention as defined by claim 1 and as indicated in the specification as originally filed. In particular, the examiner's attention is drawn to page 9, lines 204 and to page 11, lines 9-12 which clearly indicate the height of the space being defined by the various elements including the columnar spacer. As such, no new matter has been added by submission of the new drawings.

The application is now deemed to be in condition for allowance and an early indication of same is earnestly solicited.

Respectfully submitted,

Date 11-3-03

By *David A. Blumenthal* for #44,740

FOLEY & LARDNER  
Customer Number: 22428



22428

PATENT TRADEMARK OFFICE

Telephone: (202) 672-5407  
Facsimile: (202) 672-5399

David A. Blumenthal  
Attorney for Applicant  
Registration No. 26,257